REMARKS/ARGUMENTS

Various claims are being amended as shown above. The claim amendments clarify the claim language and are not intended to limit the scope of the claims, unless the claim language is expressly quoted in the following remarks to distinguish over the cited art.

In section 4 of the office action, claims 1-28, 31, 34, and 37 were rejected under 35 USC 112, first paragraph as allegedly failing to comply with the written description requirement. The Examiner alleges that claims 1, 10, and 19 recite the limitation "wherein said shared memory links provide higher bandwidth than the network connection" is not described or supported in the specification. Applicant respectfully traverses the rejection.

In the specification, page 7, lines 22-23, it is stated that an Ethernet LAN (i.e., recited as "network connection" in the claims) typically provides a much lower bandwidth connection compared to the bandwidth of the links within the multiprocessor system (i.e., recited as "shared memory links" in the claims). Additionally, in the specification, page 10, Table 1, the LINK (i.e., recited as "shared memory links" in the claims) provides a bandwidth of 32 Gigabits/second which is a higher bandwidth than the bandwidth provided by the LAN (i.e., recited as "network connection" in the claims) at 1 Gigabit/second. Additionally, in the specification, page 12, line 27 to page 13, line 2, it is stated that the very high bandwidth links (i.e., recited as "shared memory links" in the claims) provides a higher bandwidth than a LAN (i.e., recited as "network connection" in the claims). Therefore,

Applicant respectfully submits that the claim limitation "wherein said shared memory links provide higher bandwidth than the network connection" is described and supported in the specification.

For the above reasons, Applicants request reconsideration and withdrawal of this rejection under 35 U.S.C. §112.

In section 6 of the office action, claims 1-6, 10-15, 19-25, 31, 34, and 37 were rejected under 35 U.S.C. 103(a) as allegedly being anticipated by Ogus (U.S. Patent No. 6,587,875) in view of Baumgartner, et al. (U.S. Patent No. 6,334,177). Applicant respectfully traverses the rejection.

In the office action, the Examiner correctly admits that Ogus does not specifically disclose shared memory links for transmitting memory requests and memory responses between the processor cells, wherein the link connects a high bandwidth integrated circuit of the one processor cell with another high bandwidth integrated circuit of another processor cell, and wherein said shared memory links provide higher bandwidth than the network connection. In an attempt to overcome the deficiency of Ogus, the Examiner relies on Baumgartner in an attempt to show various features.

Ogus is directed to a network protocol that allows application programs to determine the available bandwidth across a network that links two computers, where messages between the two computers are sent via the network (Ogus, column 3, lines 4-10). The only physical connection

between the computers is the network itself (Ogus, column 9, lines 26-27) and no alternative links between the computers are disclosed or suggested by Ogus. Ogus requires the <u>use</u> of the <u>network</u> for a network operation between the two computers. In contrast, each of the claims 1, 10, and 19 recite the feature of using a <u>shared memory link</u> (<u>i.e., an alternative link</u>) for a network operation as a communication path when the shared memory link is usable, where the shared memory link is ordinarily used for memory requests/responses, and further recite the feature of avoiding the use of a <u>network connection</u> for a network operation when the shared memory link (alternative link) is used for the network operation. Therefore, each of the claims 1, 10, and 19 recite the feature of using the <u>shared memory link</u> <u>instead</u> of the <u>network connection</u> in order to implement a network operation, when the software on a processor cell <u>recognizes</u> that the <u>shared memory link</u> can be used for a network operation. In other words, claims 1, 10, and 19 recite using the shared memory link as an alternative path in order to implement the network operation, instead of using the usual network connection in order to implement the network operation, when the software recognizes the shared memory link can be used for the network operation. In contrast, Ogus does <u>not</u> disclose a shared memory link, does <u>not</u> further disclose in using a shared memory link in order to perform a network operation, and does <u>not</u> further disclose in using a shared memory link for a network operation instead of using a network. Ogus only discloses using a <u>network</u> for performing the network operation and only discloses in avoiding the use of the

network for the network operation when the network is saturated (Ogus, column 12, lines 18-24). Ogus also does not disclose in using an alternative link formed by a shared memory link for a network operation when the network is not used for the network operation. Ogus also does not disclose a shared memory link that provides higher bandwidth than a network connection. Therefore, Ogus fails to disclose and fails to suggest many features that are recited in each of the claims 1, 10, and 19.

Baumgartner is directed to a NUMA multiprocessor system 10 including four nodes 11a-11d that are interconnected by a Scalable Coherent Interconnect (SCI) interconnection network 16. The interconnection network 16 is used for remote access to a memory (Baumgartner, column 3, lines 31-33). Baumgartner does not disclose in using the interconnection network 16 for a network operation and further does not disclose in using the interconnection network 16 when a network (e.g., a LAN) is not used for the network operation. Baumgartner also does not disclose a software that recognizes when a shared memory link can be used for a network operation and also does not disclose in using a shared memory link as an alternative path in order to implement a network operation, instead of using the usual network connection in order to implement the network operation. Therefore, Baumgartner fails to disclose and fails to suggest many features that are recited in each of the claims 1, 10, and 19. Accordingly, each of the claims 1, 10, and 19 is patentable over the Ogus-Baumgartner combination.

Since Ogus discloses in only using the network for the network operation and does not disclose an alternative link for a network operation, and since Baumgartner does not disclose in using the interconnection network 16 for a network operation and further does not disclose in using the interconnection network 16 when a network (e.g., a LAN) is not used for the network operation, the Ogus-Baumgartner combination teaches away from the features recited in claims 1, 10, and 19. Accordingly, the Ogus-Baumgartner combination is improper. Accordingly, each of the claims 1, 10, and 19 is patentable over the Ogus-Baumgartner combination.

Claims 2-6, 11-15, and 21-25, 31, 34, and 37 depend from various ones of claims 1, 10, and 19, and are each patentable over the Ogus-Baumgartner combination for at least the same reasons that respective base claim is patentable over the Ogus-Baumgartner combination. Each of the claims 2-6, 11-15, and 21-25, 31, 34, and 37 further distinguishes over the Ogus-Baumgartner combination by reciting additional features. Accordingly, claims 2-6, 11-15, and 21-25, 31, 34, and 37 are each patentable over the combination of Ogus and Baumgartner.

For the above reasons, Applicants request reconsideration and withdrawal of this rejection under 35 U.S.C. §103.

In section 23 of the office action, claims 7-9, 16-18, and 26-28 were rejected under 35 U.S.C. 103(a) as being unpatentable over Ogus, Baumgartner, further in view of

Dally, et al. (U.S. Patent No. 6,370,145). Applicant respectfully traverses the rejection.

The Examiner correctly admits in the office action that Ogus and Baumgartner do not specifically disclose choosing a second link from said plurality of links when a first link of said plurality of links does not provide sufficient bandwidth to perform said network operation, and do not specifically disclose suspending said network operation when said link of said plurality of links is not providing sufficient bandwidth to perform said network operation and resuming said network operation when said link of said plurality of links provides sufficient bandwidth to perform said network operation. In an attempt to overcome the deficiency of Ogus and Baumgartner, the Examiner relies on Dally in an attempt to show various features.

However, Dally instead discloses the step of choosing a backup link among SONET Internet links 46,56 (Figure 7). The chosen backup link of links 46,56 of Dally are links in a network and are <u>not</u> chosen backup links in a shared memory links that are recited in the independent claims 1, 10, and 19. Additionally, the links 46,56 of Dally are not used for transmitting memory requests/responses and are therefore not the links as recited in claims 1, 10, and 19. Accordingly, the Ogus-Baumgartner-Dally combination does not disclose the features recited in dependent claims 7-9, 16-18, and 26-28 and in the corresponding base claims of dependent claims 7-9, 16-18, and 26-28. Furthermore, claims 7-9, 16-18, and 26-28 depend from various ones of claims 1, 10 and 19 and are each patentable over the

combination of Ogus, Baumgartner, and Dally for at least the same reasons that their respective base claim is patentable over the cited references, considered singly or in combination. Furthermore, each of the claims 7-9, 16-18, and 26-28 distinguishes over the combination of Ogus, Baumgartner, and Dally by reciting additional features.

Furthermore, Ogus discloses in only using the network for the network operation and does not disclose an alternative link for a network operation, and since Baumgartner does not disclose in using the interconnection network 16 for a network operation and further does not disclose in using the interconnection network 16 when a network (e.g., a LAN) is not used for the network operation. Therefore, the Ogus-Baumgartner-Dally combination teaches away from the features recited in claims 1, 10, and 19 and claims dependent on claims 1, 10, and 19.

Accordingly, claims 7-9, 16-18, and 26-28 are each patentable over the combination of Ogus, Baumgartner and Dally.

For the above reasons, Applicant requests reconsideration and withdrawal of this rejection under 35 U.S.C. §103.

For the above reasons, Applicants respectfully request allowance of all pending claims.

If the undersigned attorney has overlooked a teaching in any of the cited references that is relevant to the allowability of the claims, the Examiner is respectfully requested to specifically point out where such teachings may be found.

CONTACT INFORMATION

If the Examiner has any questions or needs any additional information, the Examiner is invited to telephone the undersigned attorney at (805) 681-5078.

Date: November 23, 2005

Respectfully submitted,
Brendan A. Voge
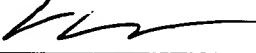
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